GenCore version 4.5
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OM protein - protein search, using sw model

Run on: June 18, 2001, 15:31:57 ; Search time 50.45 Seconds
(without alignments)
523.477 Million cell updates/sec

Title: US-09-653-755A-6
Perfect score: 2487
Sequence: 1 EVQLQQSGPELVKPGASVMI.....YLKKTISRSPGKGGHHHHHH 462

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 390729 seqs, 57163235 residues

Total number of hits satisfying chosen parameters: 390729

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : A_Geneseq_0401:*
1: /SIDS6/gcgdata/geneseq/geneseqp/AA1980.DAT:*
2: /SIDS6/gcgdata/geneseq/geneseqp/AA1981.DAT:*
3: /SIDS6/gcgdata/geneseq/geneseqp/AA1982.DAT:*
4: /SIDS6/gcgdata/geneseq/geneseqp/AA1983.DAT:*
5: /SIDS6/gcgdata/geneseq/geneseqp/AA1984.DAT:*
6: /SIDS6/gcgdata/geneseq/geneseqp/AA1985.DAT:*
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8: /SIDS6/gcgdata/geneseq/geneseqp/AA1987.DAT:*
9: /SIDS6/gcgdata/geneseq/geneseqp/AA1988.DAT:*
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13: /SIDS6/gcgdata/geneseq/geneseqp/AA1992.DAT:*
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19: /SIDS6/gcgdata/geneseq/geneseqp/AA1998.DAT:*
20: /SIDS6/gcgdata/geneseq/geneseqp/AA1999.DAT:*
21: /SIDS6/gcgdata/geneseq/geneseqp/AA2000.DAT:*
22: /SIDS6/gcgdata/geneseq/geneseqp/AA2001.DAT:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	% Query Match	Length	DB	ID	Description
1	1839.5	74.0	468	12	R13061	Monoclonal antibod
2	1835	73.8	469	14	R40384	Monoclonal antibod
3	1789.5	72.0	341	9	P83200	Sequence encoded b
4	1693.5	68.1	447	10	P93037	Chimeric antibody
5	1670.5	67.2	477	15	R47450	T84.12 Heavy chain
6	1594.5	64.1	464	16	R76088	MAb 55.1 heavy cha
7	1590.5	64.0	445	16	R76085	MAb 55.1 heavy cha
8	1564.5	62.9	464	19	W83041	Anti-Fas MAb HFE7A
9	1564.5	62.9	464	21	B14747	Mouse anti-Fas ant
10	1564.5	62.9	464	21	W90897	Murine anti-Fas an
11	1559	62.7	453	20	Y50151	Antibody F19 chime
12	1550.5	62.3	472	20	Y50157	Chimeric mouse/hum
13	1550	62.3	465	16	R66758	Anti-tobacco mosai
14	1548	62.2	454	14	R30774	H52H4-160 murine a
15	1493.5	60.1	470	21	B08026	A dimeric anti-CD2
16	1489.5	59.9	472	20	Y50166	Human reshaped F19
17	1466.5	59.0	449	14	R43339	Completely humanis
18	1466.5	59.0	449	19	W49816	Amino acid sequenc
19	1461.5	58.8	470	21	W90933	Humanised anti-Fas
20	1459.5	58.7	470	21	W90934	Humanised anti-Fas
21	1458.5	58.6	470	19	W83037	Anti-Fas humanised
22	1458.5	58.6	470	21	B14779	Humanised anti-Fas
23	1458.5	58.6	470	21	W90929	Humanised HFE7A de
24	1458.5	58.6	470	21	W90935	Humanised anti-Fas
25	1457.5	58.6	470	19	W83036	Anti-Fas humanised
26	1457.5	58.6	470	21	B14776	Humanised anti-Fas
27	1457.5	58.6	470	21	W90926	Humanised HFE7A de
28	1456.5	58.6	652	19	W48650	Heavy chain of hmA
29	1455.5	58.5	464	18	W14941	3F4 Human IgG4 exp
30	1455.5	58.5	464	18	W14938	Murine anti-porcin
31	1455.5	58.5	468	13	R28808	pre-5A8 humanised
32	1451.5	58.4	481	13	R24442	Sequence of antibo
33	1451.5	58.4	595	20	W86003	Anti-5T4 single ch
34	1447	58.2	467	22	B36210	Human immune syste
35	1446	58.1	463	18	W14939	3F4 (Chimeric) hum
36	1446	58.1	463	18	W14940	3F4 (Chimeric) hum
37	1439.5	57.9	470	21	W90936	Humanised HFE7A de
38	1434	57.7	448	14	R43673	Mouse anti-bovine
39	1433	57.6	448	17	R97376	Murine anti-BGH MA
40	1431.5	57.6	711	20	W85692	MoTAbII fusion pro
41	1429.5	57.5	468	20	W85689	D9D10 heavy chain
42	1427.5	57.4	476	14	R31023	Antibody D heavy c
43	1427	57.4	452	20	Y29458	Recombinant immuno
44	1427	57.4	452	21	B30322	Humanised anti-IL-
45	1427	57.4	452	21	Y77766	Humanised anti-IL-

ALIGNMENTS

RESULT 1
R13061
ID R13061 standard; Protein; 468 AA.
XX
AC R13061;
XX
DT 03-OCT-1991 (first entry)
XX
DE Monoclonal antibody OK3T heavy chain.
XX
KW OK3T; light chain; humanised antibodies; CDR-grafting.
XX
OS Mus musculus.
XX
FH Key Location/Qualifiers
FT Peptide 1..19
FT /label= signal peptide
FT Protein 20..468
FT /label= light chain
XX
PN WO9109967-A.
XX
PD 11-JUL-1991.
XX
PF 21-DEC-1990; 90WO-GB02017.
XX
PR 21-DEC-1990; 90WO-GB02017.
PR 21-DEC-1989; 89GB-0028874.
XX
PA (CELL-) CELLTECH LTD.
XX
PI Adair JR, Athwal DS, Emtage JS;
XX
DR WPI; 1991-222915/30.

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DR   N-PSDB; Q12637.
XX
PT   New humanised antibodies comprising CDR grafted antibody - with
PT   heavy and light chains, for use in in vivo therapy and diagnosis
XX
PS   Disclosure; Fig 2b; 91pp; English.
XX
CC   The OK3T heavy chain sequence was deduced from the cDNA sequence
CC   isolated from a library prepared from OK3T producing cells. The
CC   library was screened with a probe complementary to a region in the
CC   mouse IgG2a constant domain region. The OK3T sequence was used in
CC   CDR-grafting experiments to prepare humanised antibodies.
XX
SQ   Sequence   468 AA;
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  Query Match             74.0%;  Score 1839.5;  DB 12;  Length 468;
  Best Local Similarity   76.3%;  Pred. No. 3.2e-111;
  Matches  347;  Conservative   41;  Mismatches   60;  Indels    7;  Gaps    3;

Qy       1 EVQLQQSGPELVKPGASVMISCRTSAYTFTENTVHWVKQSHGESLEWIGGINPYYGGSIF 60
           :|||||||  ||  :|||||  :||:  |  ||||  |:|||||  |: |||||  |||  |  : :
Db      20 qvqlqqsgaelarpgasvkmsckasgytftrytmhwvkqrpgqglewigyinpsrgytny 79

Qy      61 SPKFKGKATLTVDKSSSTAYMELRSLTSEDSAVYYCARRAGAYY-FDYWGQGTTLTVSSA 119
           : ||| |||||  ||||||||||:| ||||||||||||||    :|  ||||||||||||||
Db      80 nqkfkdkatlttdkssstaymqlssltsedsavyycaryyddhycldywgqgttltvssa 139

Qy     120 KTTPPSVYPLAPGCGDTTGSSVTLGCLVKGYFPESVTVTWNSGSLSSSVHTFPALLQSGL 179
           |||  ||||||||  ||||||||||||||||||||||  ||:|||||||||  ||||||:||| |
Db     140 kttapsvyplapvcgdttgssvtlgclvkgyfpepvtltwnsgslssgvhtfpavlqsdl 199

Qy     180 YTMSSSVTVPSSTWPSQTVTCSVAHPASSTTVDKKLEPSGPISTINPCPPCKECHKCPAP 239
           ||:|||||  |||||||::||:||||||||  ||||:|| ||  || |||||    |||||
Db     200 ytlsssvtvtsstwpsqsitcnvahpasstkvdkkieprgp--tikpcppc----kcpap 253

Qy     240 NLEGGPSVFIFPPNIKDVLMISLTPKVTCVVVDVSEDDPDVQISWFVNNVEVHTAQTQTH 299
           || ||||||||||  ||||||||:| ||||||||||||||||||||||||||||||||||||
Db     254 nllggpsvfifppkikdvlmislspivtcvvvdvseddpdvqiswfvnnvevhtaqtqth 313

Qy     300 REDYNSTIRVVSTLPIQHQDWMSGKEFKCKVNNKDLPSPIERTISKIKGLVRAPQVYILP 359
           |||||||:|||| ||||||||||||||||||||||:||||||| || |||||||:||
Db     314 redynstlrvvsalpiqhqdwmsgkefkckvnnkdlpapiertiskpkgsvrapqvyvlp 373

Qy     360 PPAEQLSRKDVSLTCLVVGFNPGDISVEWTSNGHTEENYKDTAPVLDSDGSYFIYSKLNM 419
           || |::::| |:|||:|  | | || ||||:|| || |||:| ||||||||||:|||| :
Db     374 ppeeemtkkqvtltcmvtdfmpediyvewtnngktelnykntepvldsdgsyfmysklrv 433

Qy     420 KTSKWEKTDSFSCNVRHEGLKNYYLKKTISRSPGK 454
           :   | : :|:||:| |||| |::  |: ||:|||
Db     434 ekknwvernsyscsvvheglhnhhttksfsrtpgk 468
```

```
RESULT   2
R40384
ID   R40384 standard; Protein; 469 AA.
XX
AC   R40384;
XX
DT   08-FEB-1994  (first entry)
XX
DE   Monoclonal antibody M(alpha)2-3 Heavy-chain.
XX
KW   anti-snake small neurotoxin antibody; heavy chain; IgG2;
KW   immunoglobulin; bispecific bivalent antibody; cell-targetting;
KW   cytotoxic agent.
XX
FH   Key             Location/Qualifiers
FT   Peptide         1..19
FT                   /label= signal_peptide
FT   Region          20..139
FT                   /label= variable
FT   Region          140..236
FT                   /label= constant
FT   Region          237..252
FT                   /label= joining
FT   Region          253..362
FT                   /label= constant
FT   Region          363..469
FT                   /label= constant
XX
PN   EP556111-A.
XX
PD   18-AUG-1993.
XX
PF   09-FEB-1993;   93EP-0400323.
XX
PR   11-FEB-1992;   92FR-0001505.
XX
PA   (BOUL/) BOULAIN J.
PA   (COMS ) COMMISSARIAT ENERGIE ATOMIQUE.
XX
PI   Boulain J,  Ducancel F,  Gillet D,  Menez A;
XX
DR   WPI; 1993-260351/33.
DR   N-PSDB; Q48037.
XX
PT   New immunoglobulin hybrid proteins - with immunoglobulin
PT   fragments linked to dimeric protein, for diagnostic or
PT   therapeutic use
XX
PS   Example 1; Fig 3A; 37pp; French.
XX
CC   A fragment of the heavy chain (VH + CH1) from the anti-snake small
CC   neurotoxin monoclonal antibody M(alpha)2-3 was PCR-amplified from
CC   hybridoma-derived cDNA using primers Q48039 and Q48040. A light
CC   chain fragment (VL + CL) was amplified from the same source using
CC   primers Q48041 and Q48042. The two amplified fragments were
CC   inserted into the same vector; the H-chain fragment was inserted
CC   (in-frame) between codons 6-7 of the phoA coding sequence and the
CC   L-chain fragment was inserted into a cassette which contained a
CC   phoA S-D sequence, a signal peptide and the first 6 codons of phoA.
CC   The cassette was positioned between the termination codon and
CC   the transcription termination sequence of phoA. The fusion
CC   construct is expected to to encode a hybrid protein comprising two
CC   identical Ab-derived units. The invention also covers hybrid
CC   proteins containing two different Ab-derived units (i.e. to produce
CC   bispecific antibodies). When a toxic protein is used in place of
CC   phoA, the hybrid molecules can be used as cell-targetting
CC   therapeutic agents.
XX
SQ   Sequence   469 AA;
```

```
  Query Match             73.8%;  Score 1835;  DB 14;  Length 469;
  Best Local Similarity   75.7%;  Pred. No. 6.2e-111;
  Matches  345;  Conservative   44;  Mismatches   59;  Indels    8;  Gaps    3;

Qy       1 EVQLQQSGPELVKPGASVMISCRTSAYTFTENTVHWVKQSHGESLEWIGGINPYYGGSIF 60
           ::|||||||||||||||| |||: | ||||:  ::||||  |: |:||| | |  | : :
Db      20 qiqlqqsgpelvkpgasvkisckasgytftdyyinwvkqkpgqglkwigwiypasgntky 79

Qy      61 SPKFKGKATLTVDKSSSTAYMELRSLTSEDSAVYYCARRAG--AYYFDYWGQGTTLTVSS 118
           :  |||||||||| |||||||:| ||||||:|||:|||  |  |   ||||||||||||
Db      80 nenfkgkatltvdtssstaymqlssltsedtavyfcaramgatatlldywgqgttltvss 139

Qy     119 AKTTPPSVYPLAPGCGDTTGSSVTLGCLVKGYFPESVTVTWNSGSLSSSVHTFPALLQSG 178
           ||||  |||||||| |||||||||||||||||||||  ||:|||||||||  ||||||:|||
Db     140 aktapsvyplapvcgdttgssvtlgclvkgyfpepvtltwnsgslssgvhtfpavlqsd 199

Qy     179 LYTMSSSVTVPSSTWPSQTVTCSVAHPASSTTVDKKLEPSGPISTINPCPPCKECHKCPA 238
           |||:|||||| |||||||::||:|||||||| ||||:|| ||  || |||||    ||||
Db     200 lytlsssvtvtsstwpsqsitcnvahpasstkvdkkieprgp--tikpcppc----kcpa 253

Qy     239 PNLEGGPSVFIFPPNIKDVLMISLTPKVTCVVVDVSEDDPDVQISWFVNNVEVHTAQTQT 298
           ||| |||||||||| ||||||||:| ||||||||||||||||||||||||||||||||||
Db     254 pnllggpsvfifppkikdvlmislspivtcvvvdvseddpdvqiswfvnnvevhtaqtqt 313
```

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Db    254 pnllggpsvfifppkikdvlmislspivtcvvvdvseddpdvqiswfvnnvevhtaqtqt 313

Qy    299 HREDYNSTIRVVSTLPIQHQDWMSGKEFKCKVNNKDLPSPIERTISKIKGLVRAPQVYIL 358
          ||||||||:|||| |||||||||||||||||||||||:||||||| || |||||||:|
Db    314 hredynstlrvvsalpiqhqdwmsgkefkckvnnkdlpapiertiskpkgsvrapqvyvl 373

Qy    359 PPPAEQLSRKDVSLTCLVVGFNPGDISVEWTSNGHTEENYKDTAPVLDSDGSYFIYSKLN 418
          ||| |::::| |:|||:|  | | || ||||:|| || |||:| ||||||||||:|||
Db    374 pppeeemtkkqvtltcmvtdfmpediyvewtnngktelnykntepvldsdgsyfmysklr 433

Qy    419 MKTSKWEKTDSFSCNVRHEGLKNYYLKKTISRSPGK 454
          ::   | : :|:||:| |||| |::  |: ||:|||
Db    434 vekknwvernsyscsvvheglhnhhttksfsrtpgk 469


RESULT   3
P83200
ID   P83200 standard; Protein; 341 AA.
XX
AC   P83200;
XX
DT   06-MAR-1992  (first entry)
XX
DE   Sequence encoded by mouse 1gG gamma 2b gene.
XX
KW   Immunoglobulin; class gamma; antibody; immune response; Fc receptor;
KW   effector molecule; constant region; heavy chain; complement.
XX
OS   Mouse.
XX
FH   Key             Location/Qualifiers
FT   Domain          1..97
FT                   /label= CH1
FT   Region          98..119
FT                   /label= hinge
FT   Domain          120..234
FT                   /label= CH3
FT   Domain          235..341
FT                   /label= CH3
FT   Misc-difference 122
FT                   /note= "This residue is Leu in mutant EL235"
XX
PN   WO8807089-A.
XX
PD   22-SEP-1988.
XX
PF   18-MAR-1988;   88WO-GB00211.
XX
PR   01-DEC-1987;   87GB-0028042.
PR   18-MAR-1987;   87GB-0006425.
PR   10-AUG-1987;   87GB-0018897.
PR   18-MAR-1988;   88WO-GB00211.
PR   01-JAN-1988;   88GB-0025480.
XX
PA   (MEDI-) MEDICAL RES COUNCIL.
XX
PI   Winter GP,  Duncan AR,  Burton DR;
XX
DR   WPI; 1988-285543/40.
DR   N-PSDB; N82456.
XX
PT   Modified IgG class antibody - having at least one aminoacid
PT   residue in the constant portion altered to alter an effector
PT   function
XX
PS   Example; Fig 3; 42pp; English.
XX
CC   Modified antibodies (Abs) having an altered Fc region with altered
CC   binding affinity for an Fc receptor esp. Fc-gamma-R1 may have the
CC   following residues replaced: 234, 235, 236 and 237; 235 by Glu,
CC   and at least one of the others by Ala. Those with altered binding
CC   affinity for Clq may have an altered CH2 domain in which one of the
CC   following residues of the heavy chain have been changed to a
CC   residue with a different side chain; 318 (changed to Val) 320 and
CC   322 (changed to Gln). Those with altered lytic properties, as
CC   compared with unmodified Ab may have an altered CH2 domain where
CC   residue 297 of the heavy chain has been changed to Ala.
XX
SQ   Sequence   341 AA;


  Query Match             72.0%;  Score 1789.5;  DB 9;  Length 341;
  Best Local Similarity   98.5%;  Pred. No. 3.8e-108;
  Matches  336;  Conservative    0;  Mismatches    0;  Indels    5;  Gaps    1;

Qy    119 AKTTPPSVYPLAPGCGDTTGSSVTLGCLVKGYFPESVTVTWNSGSLSSSVHTFPALLQSG 178
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      1 akttppsvyplapgcgdttgssvtlgclvkgyfpesvtvtwnsgslsssvhtfpallqsg 60

Qy    179 LYTMSSSVTVPSSTWPSQTVTCSVAHPASSTTVDKKLEPSGPISTINPCPPCKECHKCPA 238
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     61 lytmsssvtvpsstwpsqtvtcsvahpasstTvdkklepsgpistinpcppckechkcpa 120

Qy    239 PNLEGGPSVFIFPPNIKDVLMISLTPKVTCVVVDVSEDDPDV-----QISWFVNNVEVHT 293
          |||||||||||||||||||||||||||||||||||||||||     ||||||||||||
Db    121 pnleggpsvfifppnikdvlmisltpkvtcvvvdvseddpdvedppgqiswfvnnvevht 180

Qy    294 AQTQTHREDYNSTIRVVSTLPIQHQDWMSGKEFKCKVNNKDLPSPIERTISKIKGLVRAP 353
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    181 aqtqthredynstirvvstlpiqhqdwmsgkefkckvnnkdlpspiertiskikglvrap 240

Qy    354 QVYILPPPAEQLSRKDVSLTCLVVGFNPGDISVEWTSNGHTEENYKDTAPVLDSDGSYFI 413
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    241 qvyilpppaeqlsrkdvsltclvvgfnpgdisvewtsnghteenykdtapvldsdgsyfi 300

Qy    414 YSKLNMKTSKWEKTDSFSCNVRHEGLKNYYLKKTISRSPGK 454
          |||||||||||||||||||||||||||||||||||||||||
Db    301 ysklnmktskwektdsfscnvrheglknyylkktisrspgk 341


RESULT   4
P93037
ID   P93037 standard; protein; 447 AA.
XX
AC   P93037;
XX
DT   14-MAR-1990  (first entry)
XX
DE   Chimeric antibody heavy chain variable region.
XX
OS   Mus.
XX
KW   KS1/4; chimeric antibody; heavy chain variable region;
XX
PN   EP338767-A.
XX
PD   25-APR-1989.
XX
PF   18-APR-1989;   89EP-0303814.
XX
PR   21-APR-1988;   88US-0184522.
XX
PA   (ELIL ) ELI LILLY AND CO.
XX
PI   Beavers LS,  Bumol TF,  Gadski RA,  Weigel BJ;
XX
DR   WPI; 1989-311203/43.
DR   N-PSDB; N91659.
XX
PT   Recombinant DNA cpds. producing antibodies - monoclonal and
PT   chimeric derived from monoclonal antibody KS1/4.
XX
PS   Claim 6; page 50; 89pp; English.
XX
CC   The sequence encodes the heavy chain of MAb KS1/4, used to
CC   construct mouse/human chimeric antibodies.  KS1/4 is a murine antibody
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CC   which binds to surface antigens on adenocarcinoma cells  and the use of
CC   human C regions avoids immunological problems during treatment.
XX
SQ   Sequence   447 AA;


  Query Match             68.1%;  Score 1693.5;  DB 10;  Length 447;
  Best Local Similarity   69.7%;  Pred. No. 8e-102;
  Matches  317;  Conservative   55;  Mismatches   74;  Indels    9;  Gaps    4;

Qy       1 EVQLQQSGPELVKPGASVMISCRTSAYTFTENTVHWVKQSHGESLEWIGGINPYYGGSIF 60
           ::|| |||||| ||| :| |||: | |||| ::|||||: |: |:|:| || | |   :
Db       1 qiqlvqsgpelkkpgetvkisckasgytftnygmnwvkqtpgkglkwmgwintytgepty 60

Qy      61 SPKFKGKATLTVDKSSSTAYMELRS-LTSEDSAVYYCARRAGAYYFDYWGQGTTLTVSSA 119
           :  |||:   ::: |:|||:::::        | |:| |       |||||||::|||||
Db      61 addfkgrfafsletsastaflqiqqpqnmrtmatyfcvrfisk--gdywgqgtsvtvssa 118

Qy     120 KTTPPSVYPLAPGCGDTTGSSVTLGCLVKGYFPESVTVTWNSGSLSSSVHTFPALLQSGL 179
           ||| |||||||| ||||||||||||||||||||| ||:|||||||| |||||:||| |
Db     119 kttapsvyplapvcgdttgssvtlgclvkgyfpepvtltwnsgslssgvhtfpavlqsdl 178

Qy     180 YTMSSSVTVPSSTWPSQTVTCSVAHPASSTTVDKKLEPSGPISTINPCPPCKECHKCPAP 239
           ||:|||||| |||||||::||:|||||||| ||||:|| ||  || |||||    |||||
Db     179 ytlsssvtvtsstwpsqsitcnvahpasstkvdkkieprgp--tikpcppc----kcpap 232

Qy     240 NLEGGPSVFIFPPNIKDVLMISLTPKVTCVVVDVSEDDPDVQISWFVNNVEVHTAQTQTH 299
           || |||||||||| |||||||||:| |||||||||||||||||||||||||||||||||||
Db     233 nllggpsvfifppkikdvlmislspivtcvvvdvseddpdvqiswfvnnvevhtaqtqth 292

Qy     300 REDYNSTIRVVSTLPIQHQDWMSGKEFKCKVNNKDLPSPIERTISKIKGLVRAPQVYILP 359
           |||||||:|||| ||||||||||||||||||||||:|||||||| || |||||||:||
Db     293 redynstlrvvsalpiqhqdwmsgkefkckvnnkdlpapiertiskpkgsvrapqvyvlp 352

Qy     360 PPAEQLSRKDVSLTCLVVGFNPGDISVEWTSNGHTEENYKDTAPVLDSDGSYFIYSKLNM 419
           || |:::| |:|||:|  | | || ||||:|| || |||:| |||||||||:|||| :
Db     353 ppeeemtkkqvtltcmvtdfmpediyvewtnngktelnykntepvldsdgsyfmysklrv 412

Qy     420 KTSKWEKTDSFSCNVRHEGLKNYYLKKTISRSPGK 454
           :   | : :|:|||:|  ||| |::  |: ||:|||
Db     413 ekknwvernsyscsvvqeglhnhhttksfsrtpgk 447


RESULT   5
R47450
ID   R47450 standard; Protein; 477 AA.
XX
AC   R47450;
XX
DT   24-JUN-1994  (first entry)
XX
DE   T84.12 Heavy chain.
XX
KW   Chimeric; carcinoembryonic antigen; CCA; murine; mouse; constant;
KW   region; transform; myeloma cell; light chain; tumour.
XX
OS   Synthetic.
XX
PN   WO9325237-A.
XX
PD   23-DEC-1993.
XX
PF   15-JUN-1993;   93WO-US05709.
XX
PR   15-JUN-1992;   92US-0904074.
XX
PA   (CITY ) CITY OF HOPE.
PA   (YANG/) YANG Y.
XX
PI   Fischer R,  Paxton R,  Shively JE,  Wu A,  Yang YHJ;
PI   Yang YH;
XX
DR   WPI; 1994-007204/01.
DR   N-PSDB; Q54652.
XX
PT   New chimaeric T84.12 antibody active against carcinoembryonic
PT   antigen - has murine variable and human constant regions, also
PT   DNA encoding it and transformed myeloma cells
XX
PS   Claim 1; Page 17; 27pp; English.
XX
CC   The sequences (Q54651-52) show the light and heavy chain cDNAs
CC   of murine T84.12. The T84.12 antibody is directed against the
CC   tumour marker carcinoma embryonic antigen, and is useful for
CC   tumour imaging and immunotherapy.
CC   The amino acid sequence given in the specification has been
CC   incorrectly identified as a nucleic acid sequence, therefore
CC   unacceptable characters have been represented as an 'N'.
CC   The amino acid sequence given below has been derived from the
CC   cDNA, by the indexer.
XX
SQ   Sequence   477 AA;


  Query Match             67.2%;  Score 1670.5;  DB 15;  Length 477;
  Best Local Similarity   69.0%;  Pred. No. 2.6e-100;
  Matches  316;  Conservative   54;  Mismatches   75;  Indels   13;  Gaps    5;

Qy       1 EVQLQQSGPELVKPGASVMISCRTSAYTFTENTVHWVKQSHGESLEWIGGINPYYGGSIF 60
           ||:| :||   |||| |: :||  | :||:   : ||:|:  : |||:  |:   | : :
Db      29 evklvesgggfvkpggslklscaasgftfssyamswvrqtpekrlewvasiss-dgitfy 87

Qy      61 SPKFKGKATLTVDKSSSTAYMELRSLTSEDSAVYYCARRAGAYY----FDYWGQGTTLTV 116
             ||: |:: | : :  |::: || |||:|:|||||    ||    | |||||  ||
Db      88 vdsvkgrftvsrdnarnilylqmsslrsedtamyycari--dyyggggfgywgqgtlatv 145

Qy     117 SSAKTTPPSVYPLAPGCGDTTGSSVTLGCLVKGYFPESVTVTWNSGSLSSSVHTFPALLQ 176
           |:|||| |||||||| |||||||||||||||||||| ||:|||||||| |||||:||
Db     146 saakttapsvyplapvcgdttgssvtlgclvkgyfpepvtltwnsgslssgvhtfpavlq 205

Qy     177 SGLYTMSSSVTVPSSTWPSQTVTCSVAHPASSTTVDKKLEPSGPISTINPCPPCKECHKC 236
           | |||:|||||| |||||||::||:|||||||| ||||:|| ||  || |||||    ||
Db     206 sdlytlsssvtvtsstwpsqsitcnvahpasstkvdkkieprgp--tikpcppc----kc 259

Qy     237 PAPNLEGGPSVFIFPPNIKDVLMISLTPKVTCVVVDVSEDDPDVQISWFVNNVEVHTAQT 296
           ||||| |||||||||| |||||||||:| ||||||||||||||||||||||||||||||||
Db     260 papnllggpsvfifppkikdvlmislspivtcvvvdvseddpdvqiswfvnnvevhtaqt 319

Qy     297 QTHREDYNSTIRVVSTLPIQHQDWMSGKEFKCKVNNKDLPSPIERTISKIKGLVRAPQVY 356
           |||||||||:|||| ||||||||||||||||||||||:|||||||| || |||||||
Db     320 qthredynstlrvvsalpiqhqdwmsgkefkckvnnkdlpapiertiskpkgsvrapqvy 379

Qy     357 ILPPPAEQLSRKDVSLTCLVVGFNPGDISVEWTSNGHTEENYKDTAPVLDSDGSYFIYSK 416
           :|||| |::::| |:|||:|  | | || ||||:|| || |||:| ||||||||||:|||
Db     380 vlpppeeemtkkqvtltcmvtdfmpediyvewtnngktelnykntepvldsdgsyfmysk 439

Qy     417 LNMKTSKWEKTDSFSCNVRHEGLKNYYLKKTISRSPGK 454
           | ::   | : :|:||:| |||| ||:  |: ||:|||
Db     440 lrvekknwvernsyscsvvheglhnyhttksfsrtpgk 477


RESULT   6
R76088
ID   R76088 standard; Protein; 464 AA.
XX
AC   R76088;
XX
DT   21-NOV-1995  (first entry)
XX
DE   MAb 55.1 heavy chain.
XX
KW   Antigen binding structure; complementarity determining region; CDR;
KW   CA55.1; colorectal cancer; tumor-associated antigen; hybridoma;
KW   monoclonal antibody; MAb; immunotherapy; therapy; diagnosis;
KW   transgenic animal; transgenic plant; antibody engineering;
KW   humanized antibody; immunotoxin.
```

```
XX
OS   Mus sp.
XX
FH   Key             Location/Qualifiers
FT   Peptide         1..19
FT                   /label= Sig_peptide
FT   Protein         20..464
FT                   /label= Mat_protein
FT                   /note= "claim 3, page 97-98"
XX
PN   WO9515382-A.
XX
PD   08-JUN-1995.
XX
PF   29-NOV-1994;   94WO-GB02610.
XX
PR   03-JUN-1994;   94GB-0011089.
PR   03-DEC-1993;   93GB-0024819.
XX
PA   (ZENE ) ZENECA LTD.
XX
PI   Blakey DC,  Boot C,  Copley CG,  Hall SM,  Paterson DS;
PI   Rose MS,  Wright AF;
XX
DR   WPI; 1995-215262/28.
DR   N-PSDB; Q94037.
XX
PT   Antigen binding structures containing CDRs recognising the CA55.1
PT   antigen - produced by hybridomas and host cells, for use in the
PT   diagnosis and therapy of cancer
XX
PS   Disclosure; Fig.15; 121pp; English.
XX
CC   MAb 55.1 (ECACC 93081901) recognises the colorectal tumor-associated
CC   antigen CA55.1.  cDNAs for the heavy (Q94037) and light (Q94036)
CC   chains of 55.1 were isolated, and F(ab)', F(ab)2, Fab, Fv, scFv or
CC   V-min humanized 55.1 constructs have been expressed in myeloma
CC   cells and E. coli.
XX
SQ   Sequence   464 AA;


  Query Match             64.1%;  Score 1594.5;  DB 16;  Length 464;
  Best Local Similarity   66.5%;  Pred. No. 2e-95;
  Matches  304;  Conservative   55;  Mismatches   83;  Indels   15;  Gaps    6;

Qy       1 EVQLQQSGPELVKPGASVMISCRTSAYTFTENTVHWVKQSHGESLEWIGGINPYYGGSIF 60
           :|||||  | |||||||||  :||: | ||||   :|||||  |: |||||  :||  | | :
Db      20 qvqlqqpgaelvkpgasvqlsckasgytftgywihwvkqrpgqglewigevnpstgrsdy 79

Qy      61 SPKFKGKATLTVDKSSSTAYMELRSLTSEDSAVYYCAR-RAGAY--YFDYWGQGTTLTVS 117
           : ||| |||||||||:||||:| |||||||||||||| ||  |    |||||||::|||
Db      80 nekfknkatltvdkssttaymqlssltsedsavyycareraygyddamdywgqgtsvtvs 139

Qy     118 SAKTTPPSVYPLAPGCGDTTGSSVTLGCLVKGYFPESVTVTWNSGSLSSSVHTFPALLQS 177
           ||||||||||||||    | | |||||||||||| ||||||||||| ||||||:|||
Db     140 sakttppsvyplapgsaaqtnsmvtlgclvkgyfpepvtvtwnsgslssgvhtfpavlqs 199

Qy     178 GLYTMSSSVTVPSSTWPSQTVTCSVAHPASSTTVDKKLEPSGPISTINPCPPCKECHKCP 237
           |||:|||||||||||||:||||:|||||||| ||||: |          |  || |  |
Db     200 dlytlsssvtvpsstwpsetvtcnvahpasstkvdkkivp-------rdc-gckpc-ict 250

Qy     238 APNLEGGPSVFIFPPNIKDVLMISLTPKVTCVVVDVSEDDPDVQISWFVNNVEVHTAQTQ 297
           | :    |||||||  |||| |:|||||||||||:|:|||:|| ||||::|||||||||
Db     251 vpevs---svfifppkpkdvltitltpkvtcvvvdiskddpevqfswfvddvevhtaqtq 307

Qy     298 THREDYNSTIRVVSTLPIQHQDWMSGKEFKCKVNNKDLPSPIERTISKIKGLVRAPQVYI 357
             | :||| | || ||| ||||::|||||:||:   |:|||:|||| ||  :|||||
Db     308 preeqfnstfrsvselpimhqdwlngkefkcrvnsaafpapiektisktkgrpkapqvyt 367

Qy     358 LPPPAEQLSRKDVSLTCLVVGFNPGDISVEWTSNGHTEENYKDTAPVLDSDGSYFIYSKL 417
           :||| ||:::  |||||::  | | ||:||||  ||   ||||:| |::|:|||||:||||
Db     368 ipppkeqmakdkvsltcmitdffpeditvewqwngqpaenyknqtqpimdtdgsyfvyskl 427

Qy     418 NMKTSKWEKTDSFSCNVRHEGLKNYYLKKTISRSPGK 454
           |:: | ||  ::|:|:| |||| |:: :|::| ||||
Db     428 nvqksnweagntftcsvlheglhnhhtekslshspgk 464


RESULT   7
R76085
ID   R76085 standard; Peptide; 445 AA.
XX
AC   R76085;
XX
DT   21-NOV-1995  (first entry)
XX
DE   MAb 55.1 heavy chain.
XX
KW   Antigen binding structure; complementarity determining region; CDR;
KW   CA55.1; colorectal cancer; tumor-associated antigen; hybridoma;
KW   monoclonal antibody; MAb; immunotherapy; therapy; diagnosis;
KW   transgenic animal; transgenic plant; antibody engineering;
KW   humanized antibody; immunotoxin.
XX
OS   Mus sp.
XX
PN   WO9515382-A.
XX
PD   08-JUN-1995.
XX
PF   29-NOV-1994;   94WO-GB02610.
XX
PR   03-JUN-1994;   94GB-0011089.
PR   03-DEC-1993;   93GB-0024819.
XX
PA   (ZENE ) ZENECA LTD.
XX
PI   Blakey DC,  Boot C,  Copley CG,  Hall SM,  Paterson DS;
PI   Rose MS,  Wright AF;
XX
DR   WPI; 1995-215262/28.
XX
PT   Antigen binding structures containing CDRs recognising the CA55.1
PT   antigen - produced by hybridomas and host cells, for use in the
PT   diagnosis and therapy of cancer
XX
PS   Claim 3; Page 97-98; 121pp; English.
XX
CC   An antigen binding structure is based on the CDRs (given in R76078-
CC   84) of the heavy (R76085) and light (R76086) chains of MAb 55.1
CC   (ECACC 93081901), which recognises the colorectal tumor-associated
CC   antigen CA55.1.  It is optionally humanized and in the form F(ab')2,
CC   F(ab)', Fab, Fv, scFv or V-min, and is produced in transgenic
CC   animals or plants.
XX
SQ   Sequence   445 AA;


  Query Match             64.0%;  Score 1590.5;  DB 16;  Length 445;
  Best Local Similarity   66.5%;  Pred. No. 3.5e-95;
  Matches  304;  Conservative   54;  Mismatches   84;  Indels   15;  Gaps    6;

Qy       1 EVQLQQSGPELVKPGASVMISCRTSAYTFTENTVHWVKQSHGESLEWIGGINPYYGGSIF 60
           :|||||  | |||||||||  :||: | ||||   :|||||  |: |||||  :||  | | :
Db       1 qvqlqqpgaelvkpgasvqlsckasgytftgywihwvkqrpgqglewigevnpstgrsdy 60

Qy      61 SPKFKGKATLTVDKSSSTAYMELRSLTSEDSAVYYCAR-RAGAY--YFDYWGQGTTLTVS 117
           : ||| |||||||||:||||:| |||||||||||||| ||  |    |||||||::|||
Db      61 nekfknkatltvdkssttaymqlssltsedsavyycareraygyddamdywgqgtsvtvs 120

Qy     118 SAKTTPPSVYPLAPGCGDTTGSSVTLGCLVKGYFPESVTVTWNSGSLSSSVHTFPALLQS 177
           ||||||||||||||    | | |||||||||||| ||||||||||| ||||||:|||
Db     121 sakttppsvyplapgsaaqtnsmvtlgclvkgyfpepvtvtwnsgslssgvhtfpavlqs 180

Qy     178 GLYTMSSSVTVPSSTWPSQTVTCSVAHPASSTTVDKKLEPSGPISTINPCPPCKECHKCP 237
```

```
          |||:|||||||||||||:||||:|||||||| ||||: |         |  || |  |
Db    181 dlytlsssvtvpsstwpsetvtcnvahpasstkvdkkivp-------rdc-gckpc-ict 231

Qy    238 APNLEGGPSVFIFPPNIKDVLMISLTPKVTCVVVDVSEDDPDVQISWFVNNVEVHTAQTQ 297
            | :    |||||||  |||| |:||||||||||:|:|||:|| ||||::|||||||||
Db    232 vpevs---svfifppkpkdvltitltpkvtcvvvdiskddpevqfswfvddvevhtaqtq 288

Qy    298 THREDYNSTIRVVSTLPIQHQDWMSGKEFKCKVNNKDLPSPIERTISKIKGLVRAPQVYI 357
              | :||| | || ||| ||||::|||||:||:   |:|||:|||| ||  :|||||
Db    289 preeqfnstfrsvselpimhqdwlngkefkcrvnsaafpapiektisktkgrpkapqvyt 348

Qy    358 LPPPAEQLSRKDVSLTCLVVGFNPGDISVEWTSNGHTEENYKDTAPVLDSDGSYFIYSKL 417
          :||| || ::  |||||::  | | ||:|||  ||   ||||:| |::|:|||||:||||
Db    349 ipppkeqqakdkvsltcmitdffpeditvewqwngqpaenykntqpimdtdgsyfvyskl 408

Qy    418 NMKTSKWEKTDSFSCNVRHEGLKNYYLKKTISRSPGK 454
          |:: | ||  ::|:|:| |||| |:: :|::| ||||
Db    409 nvqksnweagntftcsvlheglhnhhtekslshspgk 445


RESULT   8
W83041
ID   W83041 standard; Protein; 464 AA.
XX
AC   W83041;
XX
DT   15-MAR-1999  (first entry)
XX
DE   Anti-Fas MAb HFE7A heavy chain.
XX
KW   HFE7A; monoclonal antibody; mouse; Fas; humanised antibody;
KW   apoptosis; HFE7A; autoimmune disease; Hashimoto's disease;
KW   systemic lupus erythematosus; graft versus host disease;
KW   Sjogren syndrome; pernicious anaemia; Addison's disease;
KW   scleroderma; Goodpasture syndrome; Crohn's disease; sterility;
KW   rheumatoid arthritis; autoimmune haemolytic anaemia;
KW   myasthenia gravis; multiple sclerosis; Basedow's disease;
KW   thrombopenia purpura; insulin-dependent diabetes; allergy;
KW   atopy; arteriosclerosis; myocarditis; cardiomyopathy;
KW   glomerular nephritis; hypoplastic anaemia; hepatitis; AIDS;
KW   transplant rejection; therapy; complementarity determing region;
KW   CDR.
XX
OS   Mus musculus.
XX
FH   Key             Location/Qualifiers
FT   Peptide         1..19
FT                   /label= Sig_peptide
FT   Protein         20..464
FT                   /label= Mat_protein
FT   Region          20..140
FT                   /label= Variable
FT   Region          141..464
FT                   /label= Constant
FT   Region          50..54
FT                   /label= CDR_H1
FT                   /note= "claim 9"
FT   Region          69..84
FT                   /label= CDR_H2
FT                   /note= "claim 9"
FT   Region          118..128
FT                   /label= CDR_H3
FT                   /note= "claim 9"
XX
PN   AU9859701-A.
XX
PD   08-OCT-1998.
XX
PF   30-MAR-1998;   98AU-0059701.
XX
PR   08-OCT-1997;   97JP-0276064.
PR   01-APR-1997;   97JP-0082953.
PR   25-JUN-1997;   97JP-0169088.
XX
PA   (SANY ) SANKYO CO LTD.
XX
PI   Akio S,  Hideyuki H,  Hiroko Y,  Jun O,  Kimihisa I;
PI   Masahiko O,  Nobufusa S,  Shin Y,  Tohru T;
XX
DR   WPI; 1998-543440/47.
DR   N-PSDB; V71029.
XX
PT   New antibodies and proteins bind conserved epitope of Fas antigen -
PT   used to evaluate drugs in animal models and to treat Fas-associated
PT   diseases e.g. autoimmune disease,  allergy, atopy, arteriosclerosis,
PT   myocarditis, hepatitis and AIDS
XX
PS   Reference Example 4; Page 187-188; 292pp; English.
XX
CC   This is the amino acid of the heavy chain of murine anti-human Fas
CC   monoclonal antibody HFE7A.  cDNA (see V70129) encoding the heavy
CC   chain was obtained from HFE7A-secreting hybridoma (FERM BP-5828)
CC   RNA by RT-PCR (see V70125-26).  The invention provides humanised
CC   HFE7A antibodies (see W83031-37) produced by CDR grafting.  These
CC   antibodies are capable of inducing apoptosis in abnormal cells
CC   expressing Fas, and of inhibiting Fas-induced apoptosis in normal
CC   cells.  They are used to evaluate, in animal models, treatments of
CC   diseases that involve Fas/Fas ligand interactions, and also to treat
CC   such diseases, including autoimmune disease (e.g. systemic lupus
CC   erythematosus, Hashimoto's disease, graft versus host disease,
CC   Sjogren syndrome, pernicious anaemia, Addison's disease,
CC   scleroderma, Goodpasture syndrome, Crohn's disease, rheumatoid
CC   arthritis, autoimmune haemolytic anaemia, sterility, myasthenia
CC   gravis, multiple sclerosis, Basedow's disease, thrombopenia purpura
CC   and insulin-dependent diabetes), allergies, atopy, arteriosclerosis,
CC   myocarditis, cardiomyopathy, glomerular nephritis, hypoplastic
CC   anaemia, hepatitis, AIDS and transplant rejection (all claimed).
XX
SQ   Sequence   464 AA;


  Query Match           62.9%;  Score 1564.5;  DB 19;  Length 464;
  Best Local Similarity   65.2%;  Pred. No. 1.7e-93;
  Matches  298;  Conservative   58;  Mismatches   86;  Indels   15;  Gaps    5;

Qy      1 EVQLQQSGPELVKPGASVMISCRTSAYTFTENTVHWVKQSHGESLEWIGGINPYYGGSIF 60
          :|||| | |||||||||| :||: | |||| : |||| |: |||||:|:|   : :
Db     20 qvqlqqpgaelvkpgasvklsckasgytftsywmqwvkqrpgqglewigeidpsdsytny 79

Qy     61 SPKFKGKATLTVDKSSSTAYMELRSLTSEDSAVYYCARR---AGAYYFDYWGQGTTLTVS 117
          : |||||||||| |||||||:| ||||||||||||||    :  :||| || |||:|||
Db     80 nqkfkgkatltvdtssstaymqlssltsedsavyycarnrdysnnwyfdvwgtgttvtvs 139

Qy    118 SAKTTPPSVYPLAPGCGDTTGSSVTLGCLVKGYFPESVTVTWNSGSLSSSVHTFPALLQS 177
          ||||||||||||||    | | |||||||||||| |||||||||| |||||||:|||
Db    140 sakttppsvyplapgsaaqtnsmvtlgclvkgyfpepvtvtwnsgslssgvhtfpavlqs 199

Qy    178 GLYTMSSSVTVPSSTWPSQTVTCSVAHPASSTTVDKKLEPSGPISTINPCPPCKECHKCP 237
           |||:|||||||||||||||:|||||||| |||| |         |  || |  |
Db    200 dlytlsssvtvpsstwpsqtvtcnvahpasstkvdkkivp-------rdc-gckpc-ict 250

Qy    238 APNLEGGPSVFIFPPNIKDVLMISLTPKVTCVVVDVSEDDPDVQISWFVNNVEVHTAQTQ 297
          | :    |||||||  |||| |:||||||||||:|:|||:|| ||||::|||||||||
Db    251 vpevs---svfifppkpkdvltitltpkvtcvvvdiskddpevqfswfvddvevhtaqtq 307

Qy    298 THREDYNSTIRVVSTLPIQHQDWMSGKEFKCKVNNKDLPSPIERTISKIKGLVRAPQVYI 357
            | :||| | || ||| ||:|::||||||:||:   |:|||:|||| ||  :|||||
Db    308 preeqfnstfrsvselpimhqnwlngkefkcrvnsaafpapiektisktkgrpkapqvyt 367

Qy    358 LPPPAEQLSRKDVSLTCLVVGFNPGDISVEWTSNGHTEENYKDTAPVLDSDGSYFIYSKL 417
          :||| ||:::  |||||::  | | ||:|||  ||   ||||:| |:::::||||:||||
Db    368 ipppkeqmakdkvsltcmitdffpeditvewqwngqpaenykntqpimntngsyfvyskl 427

Qy    418 NMKTSKWEKTDSFSCNVRHEGLKNYYLKKTISRSPGK 454
          |:: | ||  ::|:|:| |||| |:: :|::| ||||
Db    428 nvqksnweagntftcsvlheglhnhhtekslshspgk 464
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```
RESULT   9
B14747
ID   B14747 standard; Protein; 464 AA.
XX
AC   B14747;
XX
DT   24-NOV-2000  (first entry)
XX
DE   Mouse anti-Fas antibody HFE7A heavy chain.
XX
KW   Anti-Fas antibody; monoclonal antibody HFE7A; FERM-BP-5828;
KW   murine; complementarity determining region; CDR; human Fas;
KW   Fas ligand; apoptosis modulator; programmed cell death;
KW   autoimmune disease; allergy; atopy; arteriosclerosis; myocarditis;
KW   cardiomyopathy; glomerulonephritis; aplastic anaemia; panmyelophthisis;
KW   hepatitis; AIDS; graft rejection; heavy chain.
XX
OS   Mus musculus.
XX
PN   JP2000169393-A.
XX
PD   20-JUN-2000.
XX
PF   30-SEP-1999;   99JP-0278301.
XX
PR   30-SEP-1998;   98JP-0276883.
XX
PA   (SANY ) SANKYO CO LTD.
XX
DR   WPI; 2000-485645/43.
DR   N-PSDB; A72108.
XX
PT   Preventive or treating agent for the diseases caused by an abnormality
PT   in the Fas/Fas ligand system e.g. autoimmune diseases, contains
PT   anti-Fas antibody  -
XX
PS   Example 4; Page 67-68; 139pp; Japanese.
XX
CC   The invention relates to compositions for the prevention or treatment
CC   or diseases caused by an abnormality in the Fas/Fas ligand system
CC   containing an anti-Fas antibody as the active component. The anti-Fas
CC   antibody is either the murine anti-human Fas monoclonal antibody HFE7A,
CC   or a humanised version of HFE7A containing identical CDRs
CC   (complementarity determining regions) to antibody HFE7A. Via its
CC   interaction with Fas, the antibody of the invention acts as a modulator
CC   of apoptosis. The compositions of the invention may therefore be used in
CC   the treatment or prevention of conditions such as autoimmune diseases,
CC   allergy, atopy, arteriosclerosis, myocarditis, cardiomyopathy,
CC   glomerulonephritis, aplastic anaemia (panmyelophthisis), hepatitis, AIDS
CC   and organ graft rejection. The present sequence represents the
CC   heavy chain of the murine anti-human Fas monoclonal antibody HFE7A,
CC   which is produced by hybridoma HFE7A (FERM-BP-5828).
XX
SQ   Sequence   464 AA;


  Query Match             62.9%;  Score 1564.5;  DB 21;  Length 464;
  Best Local Similarity   65.2%;  Pred. No. 1.7e-93;
  Matches  298;  Conservative   58;  Mismatches   86;  Indels   15;  Gaps    5;

Qy       1 EVQLQQSGPELVKPGASVMISCRTSAYTFTENTVHWVKQSHGESLEWIGGINPYYGGSIF 60
           :|||||  | |||||||||| :||: | ||||   : ||||  |: |||||  |:|    : :
Db      20 qvqlqqpgaelvkpgasvklsckasgytftsywmqwvkqrpgqglewigeidpsdsytny 79

Qy      61 SPKFKGKATLTVDKSSSTAYMELRSLTSEDSAVYYCARR---AGAYYFDYWGQGTTLTVS 117
           : |||||||||| |||||||:| ||||||||||||||    :  :||| || |||:|||
Db      80 nqkfkgkatltvdtssstaymqlssltsedsavyycarnrdysnnwyfdvwgtgttvtvs 139

Qy     118 SAKTTPPSVYPLAPGCGDTTGSSVTLGCLVKGYFPESVTVTWNSGSLSSSVHTFPALLQS 177
           ||||||||||||||    | | |||||||||||| |||||||||||| ||||||:|||
Db     140 sakttppsvyplapgsaaqtnsmvtlgclvkgyfpepvtvtwnsgslssgvhtfpavlqs 199

Qy     178 GLYTMSSSVTVPSSTWPSQTVTCSVAHPASSTTVDKKLEPSGPISTINPCPPCKECHKCP 237
           |||:|||||||||||||||||:|||||||| |||||: |         |  || |  |
Db     200 dlytlsssvtvpsstwpsqtvtcnvahpasstkvdkkivp-------rdc-gckpc-ict 250

Qy     238 APNLEGGPSVFIFPPNIKDVLMISLTPKVTCVVVDVSEDDPDVQISWFVNNVEVHTAQTQ 297
             | :    |||||||  |||| |:||||||||||||:|:|||:|| ||||::|||||||||
Db     251 vpevs---svfifppkpkdvltitltpkvtcvvvdiskddpevqfswfvddvevhtaqtq 307

Qy     298 THREDYNSTIRVVSTLPIQHQDWMSGKEFKCKVNNKDLPSPIERTISKIKGLVRAPQVYI 357
             | :||| | || ||| ||:|::|||||:|||:   |:|||:|||| ||  :|||||
Db     308 preeqfnstfrsvselpimhqnwlngkefkcrvnsaafpapiektisktkgrpkapqvyt 367

Qy     358 LPPPAEQLSRKDVSLTCLVVGFNPGDISVEWTSNGHTEENYKDTAPVLDSDGSYFIYSKL 417
           :||| ||::: |||||::  | | ||:|||  ||   ||||:| |:::::||||:||||
Db     368 ipppkeqmakdkvsltcmitdffpeditvewqwngqpaenykntqpimntngsyfvyskl 427

Qy     418 NMKTSKWEKTDSFSCNVRHEGLKNYYLKKTISRSPGK 454
           |:: | ||  ::|:|:| |||| |:: :|::| ||||
Db     428 nvqksnweagntftcsvlheglhnhhtekslshspgk 464


RESULT  10
W90897
ID   W90897 standard; Protein; 464 AA.
XX
AC   W90897;
XX
DT   08-AUG-2000  (first entry)
XX
DE   Murine anti-Fas antibody HFE7A heavy chain protein.
XX
KW   Fas; antibody; murine; anti-inflammatory; anti-anemic; antidiabetic;
KW   anti-allergic; anti-arthritic; antiviral; immunomodulatory; cardiant;
KW   dermatological; immunosuppressive; thyromimetic; antirheumatic; anti-Fas;
KW   nephrotropic; antiinfertility; neuroprotective; antiarteriosclerotic;
KW   hepatotropic; humanized; apoptosis; systemic lupus erythematosus; HFE7A;
KW   Hashimoto disease; rheumatoid arthritis; graft versus host disease;
KW   Sjorgen's syndrome; anemia; Addison's disease; scleroderma; sterility;
KW   Goodpasture syndrome; Crohn's disease; sterility; myasthenia gravis;
KW   multiple sclerosis; Basedow's disease; thrombopenia purpura; allergy;
KW   insulin dependent diabetes mellitus; arteriosclerosis; myocarditis;
KW   cardiomyopathy; glomerulonephritis; hepatitis; transplant rejection.
XX
OS   Mus musculus.
XX
PN   EP990663-A2.
XX
PD   05-APR-2000.
XX
PF   29-SEP-1999;   99EP-0307711.
XX
PR   30-SEP-1998;   98JP-0276881.
PR   30-SEP-1998;   98JP-0276882.
XX
PA   (SANY ) SANKYO CO LTD.
XX
PI   Serizawa N,  Haruyama H,  Nakahara K,  Tamaki I,  Takahashi T;
XX
DR   WPI; 2000-258930/23.
DR   N-PSDB; A11546.
XX
PT   New humanized anti-Fas antibody, useful for treating or preventing e.g.
PT   inflammatory or autoimmune disease, induces apoptosis selectively in
PT   cells with abnormal Fas-Fas ligand systems  -
XX
PS   Example reference 4; Page 100-102; 263pp; English.
XX
CC   This invention describes a novel humanized anti-Fas antibody-like
CC   molecule (I) that, induces apoptosis in cells with an abnormal Fas/Fas
CC   ligand system, by binding to Fas on the cell surface, and prevents
CC   apoptosis in cells with a normal system, by inhibiting binding between
CC   Fas and its ligand. The products of the invention have anti-inflammatory,
```

```
CC   anti-anemic, antidiabetic, anti-allergic, anti-arthritic, antiviral,
CC   immunomodulatory, dermatological, immunosupressive, thyromimetic,
CC   antirheumatic, nephrotropic, antiinfertility, neuroprotective,
CC   antiarteriosclerotic, cardiant and hepatropic activity. (I) induce
CC   apoptosis by binding to cell surface Fas or inhibit it by competitive
CC   inhibition of ligand binding. (I) are used to treat and/or prevent
CC   diseases associated with the Fas/Fas ligand system, especially systemic
CC   lupus erythematosus, Hashimoto disease, rheumatoid arthritis, graft
CC   versus host disease, Sjorgen's syndrome, pernicious or hypoplastic
CC   anemia, Addison's disease, scleroderma, Goodpasture syndrome, Crohn's
CC   disease, autoimmune hemolytic anemia, sterility, myasthenia gravis,
CC   multiple sclerosis, Basedow's disease, thrombopenia purpura, insulin
CC   dependent diabetes mellitus, allergy, arteriosclerosis, myocarditis,
CC   cardiomyopathy, glomerulonephritis, hepatitis (fulminant, chronic, viral
CC   (B, C or D) or alcoholic), and transplant rejection. (I) selectively
CC   inhibit apoptosis in normal cells but selectively induce it in abnormal
CC   cells. They bind to both human and murine Fas, so can be evaluated in
CC   murine disease models. (I) act on the active site of Fas, i.e. they mimic
CC   the native ligand, do not induce liver disease, and have reduced risk of
CC   inducing a human anti-murine antibody response. This sequence represents
CC   a murine anti-Fas monoclonal antibody HFE7A heavy chain described in the
CC   method of the invention.
XX
SQ   Sequence   464 AA;


  Query Match             62.9%;  Score 1564.5;  DB 21;  Length 464;
  Best Local Similarity   65.2%;  Pred. No. 1.7e-93;
  Matches  298;  Conservative   58;  Mismatches   86;  Indels   15;  Gaps    5;

Qy       1 EVQLQQSGPELVKPGASVMISCRTSAYTFTENTVHWVKQSHGESLEWIGGINPYYGGSIF 60
           :|||| | |||||||| :||: | ||||   : ||||  |: ||||| |:|    : :
Db      20 qvqlqqpgaelvkpgasvklsckasgytftsywmqwvkqrpgqglewigeidpsdsytny 79

Qy      61 SPKFKGKATLTVDKSSSTAYMELRSLTSEDSAVYYCARR---AGAYYFDYWGQGTTLTVS 117
           : |||||||||||| |||||||:| |||||||||||||    :  :||| || |||:|||
Db      80 nqkfkgkatltvdtssstaymqlssltsedsavyycarnrdysnnwyfdvwgtgttvtvs 139

Qy     118 SAKTTPPSVYPLAPGCGDTTGSSVTLGCLVKGYFPESVTVTWNSGSLSSSVHTFPALLQS 177
           ||||||||||||||    | | |||||||||||| |||||||||||| ||||||:|||
Db     140 sakttppsvyplapgsaaqtnsmvtlgclvkgyfpepvtvtwnsgslssgvhtfpavlqs 199

Qy     178 GLYTMSSSVTVPSSTWPSQTVTCSVAHPASSTTVDKKLEPSGPISTINPCPPCKECHKCP 237
           |||:|||||||||||||||:|||||||| ||||: |         |  || |  |
Db     200 dlytlsssvtvpsstwpsqtvtcnvahpasstkvdkkivp-------rdc-gckpc-ict 250

Qy     238 APNLEGGPSVFIFPPNIKDVLMISLTPKVTCVVVDVSEDDPDVQISWFVNNVEVHTAQTQ 297
           | :    |||||||  |||| |:|||||||||||:|:|||:|| |||||::|||||||||
Db     251 vpevs---svfifppkpkdvltitltpkvtcvvvdiskddpevqfswfvddvevhtaqtq 307

Qy     298 THREDYNSTIRVVSTLPIQHQDWMSGKEFKCKVNNKDLPSPIERTISKIKGLVRAPQVYI 357
             | :||| | || ||| ||:|::|||||||:||:   |:|||:|||| ||  :|||||
Db     308 preeqfnstfrsvselpimhqnwlngkefkcrvnsaafpapiektisktkgrpkapqvyt 367

Qy     358 LPPPAEQLSRKDVSLTCLVVGFNPGDISVEWTSNGHTEENYKDTAPVLDSDGSYFIYSKL 417
           :||| ||:::  |||||::  | | ||:||| ||   ||||:| |:::::||||:||||
Db     368 ipppkeqmakdkvsltcmitdffpeditvewqwngqpaenykntqpimntngsyfvyskl 427

Qy     418 NMKTSKWEKTDSFSCNVRHEGLKNYYLKKTISRSPGK 454
           |:: | ||  ::|:|:| |||| |:: :|::| ||||
Db     428 nvqksnweagntftcsvlheglhnhhtekslshspgk 464


RESULT  11
Y50151
ID   Y50151 standard; Protein; 453 AA.
XX
AC   Y50151;
XX
DT   31-JAN-2000  (first entry)
XX
DE   Antibody F19 chimeric mouse/human heavy chain variable region (chF19HC).
XX
KW   Antibody; monoclonal; F19; fibrinogen activation protein alpha; FAP;
KW   humanisation; complementarity determining region; CDR; CDR grafting;
KW   reactive stroma; fibroblast; epithelial cancer; diagnosis;
KW   immune response; framework sequence; constant region;
KW   variable region; producibility; treatment; cancer; colorectal; lung;
KW   breast; head; neck; ovarian; lung; bladder; pancreatic; metastasis;
KW   detection; wound healing;  skin inflammmation; tumour; immunogenicity;
KW   chimeric; heavy chain.
XX
OS   Chimeric - Mus sp.
OS   Chimeric - Homo sapiens.
XX
PN   EP953639-A1.
XX
PD   03-NOV-1999.
XX
PF   30-APR-1998;   98EP-0107925.
XX
PR   30-APR-1998;   98EP-0107925.
XX
PA   (BOEH ) BOEHRINGER INGELHEIM INT GMBH.
XX
PI   Park JE,  Garin-Chesa P,  Bamberger U,  Leger O,  Saldanha J;
PI   Rettig WJ;
XX
DR   WPI; 1999-621833/54.
XX
PT   New antibody protein, useful for treating cancer and for imaging
PT   presence of activated stromal fibroblasts in healing wound or inflamed
PT   skin -
XX
PS   Example 1; Fig 18; 143pp; English.
XX
CC   This sequence represents the heavy chain variable region of a
CC   chimeric mouse/human F19 antibody (chF19HC). F19 (ATCC
CC   Accession number HB 8269) is a murine monoclonal antibody
CC   against fibroblast activation protein alpha (FAP). FAP is a cell
CC   surface molecule of reactive stromal fibroblasts, and its induction
CC   is a highly consistent molecular trait of the reactive stroma of many
CC   types of epithelial cancer. Although F19 may be useful in vitro, e.g.,
CC   for diagnosis, its applications for in vivo use in humans are problematic
CC   as it elicits a human anti-mouse response which reduces the efficacy of
CC   the antibody in patients and impairs continued administration. This
CC   chimeric antibody was humanised by joining entire murine variable regions
CC   to human constant regions. However, humanised antibodies produced by this
CC   method can still elicit an anti-mouse response in humans, whereas
CC   antibodies humanised via CDR (complementarity determining region)
CC   grafting are less immunogenic in humans. Humanised F19 antibodies are
CC   useful for treating cancers e.g., colorectal cancers, non-small cell
CC   lung cancers, breast cancers, head and neck cancers, ovarian cancers,
CC   lung cancers, bladder cancers, pancreatic cancers and metastatic cancers.
CC   They are also useful for the detection of activated stromal fibroblasts
CC   in a healing wound, inflamed skin or a tumour in a human patient.
XX
SQ   Sequence   453 AA;


  Query Match             62.7%;  Score 1559;  DB 20;  Length 453;
  Best Local Similarity   64.6%;  Pred. No. 3.8e-93;
  Matches  297;  Conservative   61;  Mismatches   88;  Indels   14;  Gaps    4;

Qy       2 VQLQQSGPELVKPGASVMISCRTSAYTFTENTVHWVKQSHGESLEWIGGINPYYGGSIFS 61
           |||||||||||||||| :||:|| ||||| |:|||:||||:|||||||||  |   ::
Db       1 vqlqqsgpelvkpgasvkmscktsrytfteytihwvrqshgkslewigginpnngipnyn 60

Qy      62 PKFKGKATLTVDKSSSTAYMELRSLTSEDSAVYYCARRAGAYYF------DYWGQGTTLT 115
             ||||:||||| ||||||||||||||||||||:||||  || :      |||||||::|
Db      61 qkfkgratltvgkssstaymelrsltsedsavyfcarrriaygydeghamdywgqgtsvt 120

Qy     116 VSSAKTTPPSVYPLAPGCGDTTGSSVTLGCLVKGYFPESVTVTWNSGSLSSSVHTFPALL 175
           |||| |  |||:|||    |:| :  |||||| |||| |||:||||:|:| |||||||:|
Db     121 vssastkgpsvfplapsskstsggtaalgclvkdyfpepvtvswnsgaltsgvhtfpavl 180
```

```
Qy    176 Q-SGLYTMSSSVTVPSSTWPSQTVTCSVAHPASSTTVDKKLEPSGPISTINPCPPCKECH 234
          | ||||::|| |||||||:  :||  |:| |  |:| ||||:||     | : |||
Db    181 qssglyslssvvtvpssslgtqtyicnvnhkpsntkvdkkvepkscdkt-htcpp----- 234

Qy    235 KCPAPNLEGGPSVFIFPPNIKDVLMISLTPKVTCVVVDVSEDDPDVQISWFVNNVEVHTA 294
           |||| | ||||||:|||  || |||| ||:||||||||| :||:|: :|:|: |||| |
Db    235 -cpapellggpsvflfppkpkdtlmisrtpevtcvvvdvshedpevkfnwyvdgvevhna 293

Qy    295 QTQTHREDYNSTIRVVSTLPIQHQDWMSGKEFKCKVNNKDLPSPIERTISKIKGLVRAPQ 354
          :|:   | |||| |||| | : ||||::|||:||||:|| ||:|||:|||| ||  | ||
Db    294 ktkpreeqynstyrvvsvltvlhqdwlngkeykckvsnkalpapiektiskakgqprepq 353

Qy    355 VYILPPPAEQLSRKDVSLTCLVVGFNPGDISVEWTSNGHTEENYKDTAPVLDSDGSYFIY 414
          || |||  |:::: |||||| || | ||:||| |||  | ||| | |||||||:|:|
Db    354 vytlppsreemtknqvsltclvkgfypsdiavewesngqpennykttppvldsdgsffly 413

Qy    415 SKLNMKTSKWEKTDSFSCNVRHEGLKNYYLKKTISRSPGK 454
          ||| :  |:|:: : |||:| || | |:| :|::| ||||
Db    414 skltvdksrwqqgnvfscsvmhealhnhytqkslslspgk 453
```

RESULT 12
Y50157
ID Y50157 standard; Protein; 472 AA.
XX
AC Y50157;
XX
DT 31-JAN-2000 (first entry)
XX
DE Chimeric mouse/human F19 antibody heavy chain.
XX
KW Antibody; monoclonal; F19; fibrinogen activation protein alpha; FAP;
KW humanisation; complementarity determining region; CDR; CDR grafting;
KW reactive stroma; fibroblast; epithelial cancer; diagnosis;
KW immune response; framework sequence; constant region;
KW variable region; producibility; treatment; cancer; colorectal; lung;
KW breast; head; neck; ovarian; lung; bladder; pancreatic; metastasis;
KW detection; wound healing; skin inflammmation; tumour; immunogenicity;
KW chimeric; heavy chain.
XX
OS Chimeric - Mus sp.
OS Chimeric - Homo sapiens.
XX

FH	Key	Location/Qualifiers
FT	Peptide	1..19
FT		/note= "Leader peptide"
FT	Protein	20..472
FT		/note= "Mature chimeric mouse/human F19 heavy chain"
FT	Region	20..143
FT		/note= "Mature mouse F19 heavy chain variable region"
FT	Region	50..54
FT		/note= "Complementarity determining region (CDR) 1"
FT	Region	69..85
FT		/note= "CDR 2"
FT	Region	118..132
FT		/note= "CDR 3"
FT	Misc-difference	143..144
FT		/note= "mRNA splicing causes an Ala to be inserted between these residues"
FT	Region	144..472
FT		/note= "Human gamma-1 heavy chain constant region"

XX
PN EP953639-A1.
XX
PD 03-NOV-1999.
XX
PF 30-APR-1998; 98EP-0107925.
XX
PR 30-APR-1998; 98EP-0107925.
XX
PA (BOEH) BOEHRINGER INGELHEIM INT GMBH.
XX
PI Park JE, Garin-Chesa P, Bamberger U, Leger O, Saldanha J;
PI Rettig WJ;
XX
DR WPI; 1999-621833/54.
DR N-PSDB; Z32482.
XX
PT New antibody protein, useful for treating cancer and for imaging
PT presence of activated stromal fibroblasts in healing wound or inflamed
PT skin -
XX
PS Example 1; Fig 27; 143pp; English.
XX
CC This sequence represents the heavy chain of a chimeric mouse/human F19
CC antibody. F19 (ATCC Accession number HB 8269) is a murine monoclonal
CC antibody against fibroblast activation protein alpha (FAP). FAP is a cell
CC surface molecule of reactive stromal fibroblasts, and its induction
CC is a highly consistent molecular trait of the reactive stroma of many
CC types of epithelial cancer. Although F19 may be useful in vitro, e.g.,
CC for diagnosis, its applications for in vivo use in humans are problematic
CC as it elicits a human anti-mouse response which reduces the efficacy of
CC the antibody in patients and impairs continued administration. This
CC chimeric antibody was humanised by joining entire murine variable regions
CC to human constant regions. However, humanised antibodies produced by this
CC method can still elicit an anti-mouse response in humans, whereas
CC antibodies humanised via CDR (complementarity determining region)
CC grafting are less immunogenic in humans. Humanised F19 antibodies are
CC useful for treating cancers e.g., colorectal cancers, non-small cell
CC lung cancers, breast cancers, head and neck cancers, ovarian cancers,
CC lung cancers, bladder cancers, pancreatic cancers and metastatic cancers.
CC They are also useful for the detection of activated stromal fibroblasts
CC in a healing wound, inflamed skin or a tumour in a human patient.
XX
SQ Sequence 472 AA;

Query Match 62.3%; Score 1550.5; DB 20; Length 472;
Best Local Similarity 64.4%; Pred. No. 1.4e-92;
Matches 297; Conservative 62; Mismatches 87; Indels 15; Gaps 5;

```
Qy      1 EVQLQQSGPELVKPGASVMISCRTSAYTFTENTVHWVKQSHGESLEWIGGINPYYGGSIF 60
          |||||||||||||||||| :||:|| ||||| |:|||:||||:|||||||||| |   :
Db     20 evqlqqsgpelvkpgasvkmscktsrytfteytihwvrqshgkslewigginpnngipny 79

Qy     61 SPKFKGKATLTVDKSSSTAYMELRSLTSEDSAVYYCARRAGAYYF------DYWGQGTTL 114
          : ||||:||||| |||||||||||||||||||||:|||| || :      |||||||::
Db     80 nqkfkgratltvgkssstaymelrsltsedsavyfcarrriaygydeghamdywgqgtsv 139

Qy    115 TVSSAKTTPPSVYPLAPGCGDTTGSSVTLGCLVKGYFPESVTVTWNSGSLSSSVHTFPAL 174
          ||||: |  |||:|||| |:| :  |||||| |||| |||:||||:|:| ||||||:
Db    140 tvsss-tkgpsvfplapsskstsggtaalgclvkdyfpepvtvswnsgaltsgvhtfpav 198

Qy    175 LQ-SGLYTMSSSVTVPSSTWPSQTVTCSVAHPASSTTVDKKLEPSGPISTINPCPPCKEC 233
          || ||||::|| ||||||:  :||  |:| |  |:| ||||:||     | : |||
Db    199 lqssglyslssvvtvpssslgtqtyicnvnhkpsntkvdkkvepkscdkt-htcpp---- 253

Qy    234 HKCPAPNLEGGPSVFIFPPNIKDVLMISLTPKVTCVVVDVSEDDPDVQISWFVNNVEVHT 293
            |||| | ||||||:|||  || |||| ||:|||||||| :||:|: :|:|: ||||
Db    254 --cpapellggpsvflfppkpkdtlmisrtpevtcvvvdvshedpevkfnwyvdgvevhn 311

Qy    294 AQTQTHREDYNSTIRVVSTLPIQHQDWMSGKEFKCKVNNKDLPSPIERTISKIKGLVRAP 353
          |:|:   | |||| |||| | : ||||::|||:||||:|| ||:|||:|||| ||  | |
Db    312 aktkpreeqynstyrvvsvltvlhqdwlngkeykckvsnkalpapiektiskakgqprep 371

Qy    354 QVYILPPPAEQLSRKDVSLTCLVVGFNPGDISVEWTSNGHTEENYKDTAPVLDSDGSYFI 413
          ||| |||  |:::: |||||| || | ||:||| |||  | ||| | ||||||||:|:
Db    372 qvytlppsreemtknqvsltclvkgfypsdiavewesngqpennykttppvldsdgsffl 431

Qy    414 YSKLNMKTSKWEKTDSFSCNVRHEGLKNYYLKKTISRSPGK 454
          |||| :  |:|:: : |||:| || | |:| :|::| ||||
Db    432 yskltvdksrwqqgnvfscsvmhealhnhytqkslslspgk 472
```

RESULT 13
R66758

```
ID   R66758 standard; Protein; 465 AA.
XX
AC   R66758;
XX
DT   01-SEP-1995  (first entry)
XX
DE   Anti-tobacco mosaic virus monoclonal Ab heavy chain.
XX
KW   Tobacco mosaic virus; TMV; monoclonal antibody;
KW   heavy chain; virus-resistant plants; biofarming.
XX
OS   Synthetic.
XX
FH   Key             Location/Qualifiers
FT   Peptide         1..19
FT                   /label= leader
FT   Peptide         20..465
FT                   /label= mat_peptide
FT   Domain          20..128
FT                   /note= "variable heavy domain"
FT   Domain          129..141
FT                   /note= "J heavy 4 domain"
FT   Domain          142..465
FT                   /note= "constant heavy domain"
XX
PN   JP06319396-A.
XX
PD   22-NOV-1994.
XX
PF   07-MAY-1993;   93JP-0131208.
XX
PR   07-MAY-1993;   93JP-0131208.
XX
PA   (NISB ) JAPAN TOBACCO INC.
PA   (KURS ) KURARAY CO LTD.
XX
DR   WPI; 1995-040220/06.
DR   N-PSDB; Q79930.
XX
PT   Transformed plant producing animal-derived anti-virus antibody -
PT   esp. tobacco plants producing anti-tobacco mosaic virus
PT   monoclonal antibody
XX
PS   Example 2; Pages 14-15; 26pp; Japanese.
XX
CC   Q79929 and Q79930 encode R66757 and R66758, the light and heavy
CC   chains of an animal derived anti-tobacco mosaic virus (TMV)
CC   monoclonal antibody. The cDNAs were incorporated into a Ti
CC   plasmid vector, which was incorporated into A. tumefaciens.
CC   The resultant plant expression vector was used to transform
CC   tobacco plants, making them TMV resistant, the plants could
CC   also be biofarmed for the prodn. of anti-virus antibodies.
XX
SQ   Sequence   465 AA;
```

```
  Query Match             62.3%;  Score 1550;  DB 16;  Length 465;
  Best Local Similarity   64.4%;  Pred. No. 1.5e-92;
  Matches  295;  Conservative   58;  Mismatches   89;  Indels   16;  Gaps    5;

Qy       1 EVQLQQSGPELVKPGASVMISCRTSAYTFTENTVHWVKQSHGESLEWIGGINPYYGGSIF 60
           :|||||||  || :|||||  :||: | ||||   : ||||  |: |||||  | |  | : :
Db      20 qvqlqqsgaelarpgasvklsckasgytftsywmqwvkqrpgqglewigaiypgngdtry 79

Qy      61 SPKFKGKATLTVDKSSSTAYMELRSLTSEDSAVYYCARRAG----AYYFDYWGQGTTLTV 116
           : |||||||||  ||||||||:| :| ||||||||||  |     |  |||||||::||
Db      80 tqkfkgkatltadkssstaymqlsalasedsavyycareggyswsdyamdywgqgtsvtv 139

Qy     117 SSAKTTPPSVYPLAPGCGDTTGSSVTLGCLVKGYFPESVTVTWNSGSLSSSVHTFPALLQ 176
           ||||||||||||||||    | | ||||||||||||| ||||||||||| ||||||:||
Db     140 ssakttppsvyplapgsaaqtnsmvtlgclvkgyfpepvtvtwnsgslssgvhtfpavlq 199

Qy     177 SGLYTMSSSVTVPSSTWPSQTVTCSVAHPASSTTVDKKLEPSGPISTINPCPPCKECHKC 236
```

```
           | |||:|||||||||  ||:||||:|||||||| ||||: |         |  || |  |
Db     200 sdlytlsssvtvpssprpsetvtcnvahpasstkvdkkivp-------rdc-gckpc-ic 250

Qy     237 PAPNLEGGPSVFIFPPNIKDVLMISLTPKVTCVVVDVSEDDPDVQISWFVNNVEVHTAQT 296
             | :    |||||||  |||| |:|||||||||||:|:|||:|| ||||::|||||||
Db     251 tvpevs---svfifppkpkdvltitltpkvtcvvvdiskddpevqfswfvddvevhtaqt 307

Qy     297 QTHREDYNSTIRVVSTLPIQHQDWMSGKEFKCKVNNKDLPSPIERTISKIKGLVRAPQVY 356
           |   | :||| | || ||| ||||::|||||:||:   |:|||:|||| ||  :|||||
Db     308 qpreeqfnstfrsvselpimhqdwlngkefkcrvnsaafpapiektisktkgrpkapqvy 367

Qy     357 ILPPPAEQLSRKDVSLTCLVVGFNPGDISVEWTSNGHTEENYKDTAPVLDSDGSYFIYSK 416
            :||| ||::: |||||:: | | ||:||| ||   ||||:| |:::::||||:|||
Db     368 tipppkeqmakdkvsltcmitdffpeditvewqwngqpaenykntqpimntngsyfvysk 427

Qy     417 LNMKTSKWEKTDSFSCNVRHEGLKNYYLKKTISRSPGK 454
           ||:: | ||  ::|:|:| |||| |:: :|::| ||||
Db     428 lnvqksnweagntftcsvlheglhnhhtekslshspgk 465
```

```
RESULT  14
R30774
ID   R30774 standard; protein; 454 AA.
XX
AC   R30774;
XX
DT   12-MAY-1993  (first entry)
XX
DE   H52H4-160 murine anti-CD18 antibody heavy chain.
XX
KW   Humanisation; rapid; monoclonal antibody.
XX
OS   Mus musculus.
XX
PN   WO9222653-A.
XX
PD   23-DEC-1992.
XX
PF   15-JUN-1992;   92WO-US05126.
XX
PR   14-JUN-1991;   91US-0715272.
XX
PA   (GETH ) GENENTECH INC.
XX
PI   Carter PJ,  Presta LG;
XX
DR   WPI; 1993-018139/02.
XX
PT   Humanisation of antibodies - by molecular modelling of the variable
PT   domains and alteration by gene conversion mutagenesis
XX
PS   Disclosure; Fig 6A; 126pp; English.
XX
CC   The sequence is that of the heavy chain of murine anti-CD18
CC   antibody H52H4-160.
XX
SQ   Sequence   454 AA;
```

```
  Query Match             62.2%;  Score 1548;  DB 14;  Length 454;
  Best Local Similarity   63.8%;  Pred. No. 2e-92;
  Matches  294;  Conservative   59;  Mismatches   94;  Indels   14;  Gaps    4;

Qy       1 EVQLQQSGPELVKPGASVMISCRTSAYTFTENTVHWVKQSHGESLEWIGGINPYYGGSIF 60
           :|||||||||||||||| |||:|| ||||| |:||:|||||:|||||| ||  |||
Db       1 qvqlqqsgpelvkpgasvkiscktsgytfteytmhwmkqshgkslewiggfnpknggssh 60

Qy      61 SPKFKGKATLTVDKSSSTAYMELRSLTSEDSAVYYCARRAG------AYYFDYWGQGTTL 114
           : :|  |||| ||||:|||||||||||||| :|||||  |        ||| || |||:
Db      61 nqrfmdkatlavdkststaymelrsltsedsgiyycarwrglnygfdvryfdvwgagttv 120

Qy     115 TVSSAKTTPPSVYPLAPGCGDTTGSSVTLGCLVKGYFPESVTVTWNSGSLSSSVHTFPAL 174
           ||||| |  |||:||||    |:| :  |||||| |||| |||:||||:|:| ||||||:
```

```
Db    121 tvssastkgpsvfplapsskstsggtaalgclvkdyfpepvtvswnsgaltsgvhtfpav 180

Qy    175 LQ-SGLYTMSSSVTVPSSTWPSQTVTCSVAHPASSTTVDKKLEPSGPISTINPCPPCKEC 233
          || |||||::|| |||||||:  :|| |:| | |:| ||||:||     | : |||
Db    181 lqssglyslssvvtvpssslgtqtyicnvnhkpsntkvdkkvepkscdkt-htcpp---- 235

Qy    234 HKCPAPNLEGGPSVFIFPPNIKDVLMISLTPKVTCVVVDVSEDDPDVQISWFVNNVEVHT 293
            |||| | |||||||:||| || |||| ||:|||||||||| :||:|: :|:|: ||||
Db    236 --cpapellggpsvflfppkpkdtlmisrtpevtcvvvdvshedpevkfnwyvdgvevhn 293

Qy    294 AQTQTHREDYNSTIRVVSTLPIQHQDWMSGKEFKCKVNNKDLPSPIERTISKIKGLVRAP 353
          |:|:   | |||| |||| | : ||||::|||:||||:|| ||:|||:|||| ||  | |
Db    294 aktkpreeqynsttrvvsvltvlhqdwlngkeykckvsnkalpapiektiskakgqprep 353

Qy    354 QVYILPPPAEQLSRKDVSLTCLVVGFNPGDISVEWTSNGHTEENYKDTAPVLDSDGSYFI 413
          ||| |||  |:::: |||||| || | ||:||| ||| | ||| | |||||||||:|:
Db    354 qvytlppsreemtknqvsltclvkgfypsdiavewesngqpennykttppvldsdgsffl 413

Qy    414 YSKLNMKTSKWEKTDSFSCNVRHEGLKNYYLKKTISRSPGK 454
          |||| :  |:|:: : |||:| || | |:| :|::| ||||
Db    414 yskltvdksrwqqgnvfscsvmhealhnhytqkslslspgk 454
```

RESULT 15
B08026
ID B08026 standard; Protein; 470 AA.
XX
AC B08026;
XX
DT 14-NOV-2000 (first entry)
XX
DE A dimeric anti-CD20 heavy chain polypeptide.
XX
KW Anti-CD20 antibody; dimeric immunoglobulin; immunoglobulin; IgG;
KW complement system; Fcgamma receptor; cytotoxic effector cell;
KW host immune cell; programmed cell death; allergic disorder; cancer;
KW autoimmune disease; allergic asthma; atopic dermatitis; Crohn's disease;
KW allergic bronchopulmonary aspergillosis; allergic rhinitis;
KW Graves's disease; food allergy; allergic contact dermatitis; cancer;
KW B-cell lymphoma; rheumatoid arthritis; ulcerative colitis; psoriasis;
KW pigeon breeder's disease; hepatitis; leprosy; Lyme disease;
KW diabetes mellitus; candidiasis; aplastic anaemia.
XX
OS Chimeric - Mus sp.
OS Chimeric - Homo sapiens.
XX
FH Key Location/Qualifiers
FT Peptide 1..19
FT /note= "signal peptide"
FT Protein 20..140
FT /note= "murine anti-human CD20 heavy chain variable
FT region"
FT Protein 141..470
FT /note= "human gamma 1 heavy chain constant region"
XX
PN WO200044788-A1.
XX
PD 03-AUG-2000.
XX
PF 28-JAN-2000; 2000WO-US01893.
XX
PR 28-JAN-1999; 99US-0238741.
XX
PA (IDEC-) IDEC PHARM CORP.
XX
PI Braslawsky GR, Hanna N, Hariharan K, Labarre MJ, Huynh TB;
XX
DR WPI; 2000-514811/46.
DR N-PSDB; A63531.
XX
PT Genetically engineering immunoglobulin (Ig) G/IgG dimers for the
PT treatment of cancers, allergic disorders and autoimmune conditions -
XX
PS Example 1; Fig 2A-C; 65pp; English.
XX
CC The present sequence represents a dimeric anti-CD20 light chain
CC polypeptide. The dimeric immunoglobulin is used in the method of the
CC invention. The specification describes a method for producing an
CC immunoglobulin (Ig) G/IgG dimer. The method comprises genetically
CC engineering a monoclonal antibody to introduce a cysteine molecule
CC which inhibits formation of intramolecular disulphide bridges between
CC sister heavy chains on the same antibody molecule. The dimer is a
CC homodimer or heterodimer that is capable of activating components of the
CC complement system, and has the ability to activate and kill cells via the
CC complement cascade. The dimer is also capable of binding to Fcgamma
CC receptors on cytotoxic effector cells and on host immune cells, and is
CC capable of initiating programmed cell death. The IgG/IgG dimers may be
CC used to treat allergic disorders, cancers and autoimmune diseases such
CC as allergic asthma, allergic bronchopulmonary aspergillosis, allergic
CC rhinitis, atopic dermatitis, Crohn's disease, Graves's disease, food
CC allergies, allergic contact dermatitis, CLL cancers and/or B-cell
CC lymphomas. They may also be used to treat a range of other diseases and
CC disorders such as rheumatoid arthritis, ulcerative colitis, psoriasis,
CC pigeon breeder's disease, hepatitis, leprosy, Lyme disease, diabetes
CC mellitus, candidiasis and aplastic anaemia. They are also useful for
CC inducing hyper-cross-linking of membrane antigens and for the
CC preferential killing of selected cell populations.
XX
SQ Sequence 470 AA;

Query Match 60.1%; Score 1493.5; DB 21; Length 470;
Best Local Similarity 62.0%; Pred. No. 6.7e-89;
Matches 284; Conservative 62; Mismatches 101; Indels 11; Gaps 4;

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Qy      1 EVQLQQSGPELVKPGASVMISCRTSAYTFTENTVHWVKQSHGESLEWIGGINPYYGGSIF 60
          :|||| | |||||||||| :||: | |||   :|||||: |  ||||| | |  | : :
Db     20 qvqlqqpgaelvkpgasvkmsckasgytftsynmhwvkqtpgrglewigaiypgngdtsy 79

Qy     61 SPKFKGKATLTVDKSSSTAYMELRSLTSEDSAVYYCARR---AGAYYFDYWGQGTTLTVS 117
          : |||||||| |||||||||:| ||||||||||||||     | :||: || |||:|||
Db     80 nqkfkgkatltadkssstaymqlssltsedsavyycarstyyggdwyfnvwgagttvtvs 139

Qy    118 SAKTTPPSVYPLAPGCGDTTGSSVTLGCLVKGYFPESVTVTWNSGSLSSSVHTFPALLQ- 176
          :| |  |||:|||| |:| :  |||||| |||| |||:||||:|:| |||||:||
Db    140 aastkgpsvfplapsskstsggtaalgclvkdyfpepvtvswnsgaltsgvhtfpavlqs 199

Qy    177 SGLYTMSSSVTVPSSTWPSQTVTCSVAHPASSTTVDKKLEPSGPISTINPCPPCKECHKC 236
          ||||::|| ||||||:  :||  |:| |  |:| |||:||     | : |||      |
Db    200 sglyslssvvtvpssslgtqtyicnvnhkpsntkvdkkvepkscdkt-htcpp------c 252

Qy    237 PAPNLEGGPSVFIFPPNIKDVLMISLTPKVTCVVVDVSEDDPDVQISWFVNNVEVHTAQT 296
          ||| | ||||||:|||  || |||| ||:||||||||| :||:|: :|:|: |||| |:|
Db    253 papellggpsvflfppkpkdtlmisrtpevtcvvvdvshedpevkfnwyvdgvevhnakt 312

Qy    297 QTHREDYNSTIRVVSTLPIQHQDWMSGKEFKCKVNNKDLPSPIERTISKIKGLVRAPQVY 356
          :   | |||| |||| | : ||||::|||:||||:|| ||:|||:|||| ||  | ||||
Db    313 kpreeqynstyrvvsvltvlhqdwlngkeykckvsnkalpapiektiskakgqprepqvy 372

Qy    357 ILPPPAEQLSRKDVSLTCLVVGFNPGDISVEWTSNGHTEENYKDTAPVLDSDGSYFIYSK 416
          |||  ::|::  |||||||| || | ||:||| |||  | ||| | ||||||||:|:|||
Db    373 tlppsrdeltknqvsltclvkgfypsdiavewesngqpennykttppvldsdgsfflysk 432

Qy    417 LNMKTSKWEKTDSFSCNVRHEGLKNYYLKKTISRSPGK 454
          | :  |:|:: : |||:| || | |:| :|::|  |||
Db    433 ltvdksrwqqgnvfscsvmhealhnhytqkslslcpgk 470
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Search completed: June 18, 2001, 15:31:58
Job time: 146 sec